We Claim

1. An optical communication network comprising a transmission optical pathway optically linking a transmitter of optical signals and a receiver of optical signals characterized in that said optical pathway comprises a transmission optical fiber and an additional optical fiber wherein the length of said transmission optical fiber is more than 1 Km and equal to or less than 20 Km, the length of said additional fiber is at least 0.5 Km, the zero dispersion wavelength of said transmission fiber and said additional fiber is in the range 1260 to 1360 nm, and wherein the sign of the first derivative of dispersion with respect to wavelength at the central operating wavelength of said additional fiber is the opposite of the sign of the first derivative of dispersion with respect to wavelength at the central operating wavelength of said transmission fiber.

2. The communication network of claim 1 further including a multi longitudinal mode laser in optical communication with said pathway.

3. The optical communication network of claim 2 wherein said laser has a mode partition coefficient in the range 0.2 to 0.5.

4. The network of claim 1 wherein said additional optical fiber is located at said receiver.

5. The optical communication network of claim 1 wherein said additional fiber is located at said transmitter.

6. The optical communication network of claim 1 wherein said network includes a plurality of said receivers.

7. A process for optical communication comprising the steps of transmitting a signal comprising light from a multi longitudinal mode laser on an optical transmission pathway characterized in that said optical transmission pathway comprises a transmission optical fiber and an additional optical fiber, said transmission optical fiber having a length greater than 1 Km and less than or equal to 20 Km, said additional fiber having a length greater than 0.5 Km, said transmission optical fiber and said additional optical fiber having a zero dispersion wavelength in the range 1260 to 1360 nm, the sign of the first derivative of dispersion with respect to wavelength at the central operating wavelength of said additional fiber is the opposite of the sign of the first derivative of dispersion with respect to wavelength at the

central operating wavelength of said additional fiber, and the loss for said signal over said optical transmission pathway fiber is less than 20 dB.

8. The process of claim 7 wherein said signal has a mode distribution associated with that from a multi longitudinal mode laser having a mode partition coefficient in the range 0.2 to 0.5.

9. The process of claim 7 wherein a multiplicity of said signals are transmitted.

10. A process for optical communication between a transmitter and a receiver wherein said transmitter transmits a signal from a single mode longitudinal laser and receives a signal from a multi longitudinal mode laser from said receiver wherein the transmission pathway for said multi longitudinal mode laser signal comprises a transmission fiber and an additional fiber, said transmission optical fiber has a length greater than 1 Km and less than 20 Km, said additional fiber has a length greater than 0.5 Km said transmission optical fiber and said additional fiber having a zero dispersion wavelength in the range 1260 to 1360 nm, and the sign of the first derivative of dispersion with respect to wavelength at the central operating wavelength of said additional fiber is the opposite in sign of the first derivative of dispersion with respect to wavelength at the central operating wavelength of said transmission fiber and the loss for said signal from said multi longitudinal mode laser is less than 20 dB; wherein said additional fiber is absent from the transmission path of said signal from said single longitudinal mode laser to said receiver.